

e. Remarks

Amendments

The amendment to Figure 1 deletes reference numerals 44, 46 in a central rough region 34 of the figure. Applicant requests approval of the amendment.

Claim Rejections under 35 U.S.C. § 102

At page 2, the Office Action rejects claims 12, and 15 – 18 as anticipated by Knipp (i.e., U.S. Patent Publication No. 2004/0124416).

The Office Action states:

Knipp et al. teach ...

a continuous first layer (130) whose surface has a plurality of non-intersecting smooth regions (portions of 130 not masked by 240 & 245), each smooth region being laterally surrounded by a laterally bordering rough region (portions of 130 masked by 240 & 245) of the same surface of the first layer (fig. 3D, paragraphs 25, & 29), ...

Office Action, page 2, Section 3 (underlining added).

For at least two reasons, the cited portion of Knipp does not teach smooth regions ... surrounded by laterally bordering rough regions of the same surface of the same layer.

First, Knipp does not disclose the surface of layer 130 as being rougher under drain structure 240 and source structure 245 than at other parts of the same layer 130.

Second, while Fig. 3D shows that layer 130 has a smooth step under both drain structure 240 and source structure 245, an isolated step is not indicative of greater surface roughness. The curvature of a step does not of itself indicate that the associated portion of the surface is rougher than adjacent portions of the surface. That is, surface roughness is not the same as the global surface curvature. For example, a curved surface of a glass sphere may even be less rough than the flat surface of a sheet of paper.

The McGraw-Hill Dictionary of Scientific and Technical Terms provides evidence of the meaning of surface roughness at page 1574 of (part of page 1574 is attached). Page 1574 has a definition that states in part:

surface roughness [ENG] The closely spaced unevenness of a solid surface (pits and projections)”

Thus, surface roughness is related “to closely spaced unevenness on a solid surface”, i.e., a plurality of adjacent pits and/or a plurality of adjacent projections rather than a global curvature of a surface. Rough surfaces have a multiplicity of pits or peaks, which cause the roughness. Figure 1 of the pending application shows exemplary rough regions 34

and adjacent smooth regions 30, 32 of the surface of layer 18. The rough regions 34 have pluralities of peaks 44 and pluralities of valleys, i.e., not a single isolated step.

The above cited part of Knipp does not suggest that the part of the layer 130 under drain and source structures 240, 245 has more, bigger, or more densely spaced surface pits and/or peaks than adjacent portions of the surface of the layer 130. Thus, Knipp does not teach that the surface of the layer 130 is rougher under the drain and source structures 240, 245 than at adjacent portions of the layer 130.

Due to the lack of a prior art citation to teach smooth regions ... surrounded by laterally bordering rough regions of the same surface, the Office Action's application of Knipp does not anticipate pending claim 12. For that reason, the novelty rejection should be withdrawn.

Claims 13 – 18 are novel, at least, by their dependence on novel claim 12.

Claim Rejections under 35 U.S.C. § 103(a)

At page 4, the Office Action rejects claims 1 – 5 and 7 – 11 as obvious over a combination of Knipp and Amundson (i.e., U.S. Patent 6,498,114).

The Office Action admits that Knipp specifically lacks a teaching for the pressing step at lines 5 – 9 of pending claim 1, but further states:

However, Amundson et al. teach a method, comprising:
 pressing a surface of a stamp (fig. 2B element 300) into the first layer (20) to produce a pattern of nonintersecting smooth regions (20) on the surface in the first layer, ..., the pattern of smooth and rough regions on the surface of the first layer copying a pattern of smooth and rough areas on the surface of the stamp; ...
 Office Action, page 4, Section 7.

The Office Action does not cite a specific prior art teaching for “the pattern of smooth and rough regions on the surface of the first layer copying a pattern of smooth and rough areas on the surface of the stamp” as in pending claim 1. Rather than applying a roughness-patterned surface of a stamp to a layer to produce a pattern of smooth and rough regions on the surface of the layer, Amundson uses a stamp to apply a pattern of destructive agent to the layer. In particular, Amundson states:

Next, a patterned layer of a destructive agent 100 is deposited adjacent to the organic semiconductor film 20 (Step 3).

The destructive agent 100 is selected for its ability to change a property of the organic semiconductor film 20. Sufficient quantity of the destructive agent 100 is applied so that adjacent portions of the organic semiconductor film 20 have the property changed substantially through the full thickness of the film 20. ...

Amundson, col. 3, lines 45 – 52.

Thus, Amundson teaches applying a pattern of destructive agent to the layer rather than pressing a roughness-patterned surface of a stamp into the layer. At col. 3, line 45, to col. 4, line 17, of Amundson, which the Office Action cites, there is also no teaching that the stamp has a pattern of rough and smooth surface regions that is a copy of the pattern produced in the semiconductor layer. Similarly, Figure 2b does not show a portion of the surface of the stamp 300 as being pressed into the layer 20 as recited in claim 1. Instead, Figure 2B only shows the stamp as being positioned to bring a pattern of the destructive agent 100 into contact with the surface of the layer 20. The cited portions of Amundson teach using a pattern of a destructive agent to pattern a surface rather than using a roughness pattern on a stamp itself. See Amundson, col. 4, lines 26 – 29.

Due to the lack of a citation to teach the above-described features of the pressing step, the Office Action has not established a prima facie case of obviousness for pending claim 1. For that reason the rejection of claim 1 is improper and should be withdrawn.

Claims 2 – 11 are non-obvious, at least, by their dependence on non-obvious base claim 1.

Conclusion

Applicants respectfully requests allowance of pending claims 1 – 18.

NO FEE DUE.

In the event of any non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit Lucent Technologies Deposit Account No. 12-2325 as required to correct the error.

Respectfully,



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Date: April 12, 2005

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In addition, material has been drawn from the following references: R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *U.S. Air Force Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, 1st ed., National Aeronautics and Space Administration, 1965; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, 1st ed., Department of Defense, 1967; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; *ADP Glossary*, Department of the Navy, NAVSO P-3097.

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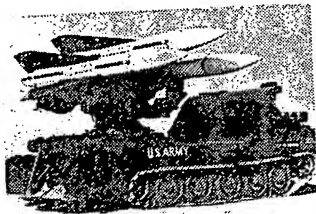
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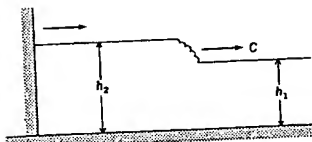
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SURFACE-TO-AIR
MISSILE



Surface-to-air missile known as Hawk, for defense against low-flying aircraft. (Official U.S. Army photograph)

SURGE



Sketch of a surge wave (fl mech). C = speed of propagation; h_1 = height of water before passage of surge; h_2 = height of water after passage of surge.

face of an insulator, measured between the opposite sides of a square on the surface; the value in ohms is independent of the size of the square and the thickness of the surface film.

surface retention See surface storage.

surface rights [MIN ENG] 1. Ownership of the surface land only, mineral rights being reserved. 2. Ownership of the surface land plus mineral rights. 3. The right of a mineral owner or an oil and gas lessee to use as much surface land as may be reasonably necessary for the conduct of operations under the lease.

surface rolling [MET] A cold-rolling process for hardening the surface of a metal.

surface roughness [ENG] The closely spaced unevenness of a solid surface (pits and projections) that results in friction for solid-solid movement or for fluid flow across the solid surface.

surface runoff [HYD] Runoff that moves over the soil surface to the nearest surface stream.

surface-set bit [DES ENG] A bit containing a single layer of diamonds set so that the diamonds protrude on the surface of the crown. Also known as single-layer bit.

surface sizing See sizing treatment.

surface soil [GEOL] The soil extending 5 to 8 inches (13 to 20 centimeters) below the surface.

surface state [SOLID STATE] An electron state in a semiconductor whose wave function is restricted to a layer near the surface.

surface storage [HYD] The part of precipitation retained temporarily at the ground surface as interception or depression storage so that it does not appear as infiltration or surface runoff either during the rainfall period or shortly thereafter. Also known as initial detention; surface retention.

surface temperature [METEOROL] Temperature of the air near the surface of the earth. [OCEANOGR] Temperature of the layer of seawater nearest the atmosphere.

surface tension [FL MECH] The force acting on the surface of a liquid, tending to minimize the area of the surface; quantitatively, the force that appears to act across a line of unit length on the surface. Also known as interfacial force; interfacial tension; surface tensility.

surface tension number [FL MECH] A dimensionless number used in studying mass transfer in packed columns equal to the square of the dynamic viscosity of a fluid times the length of the perimeter of a packing element, divided by the product of the surface area of the packing element, the surface tension, and the density of the liquid. Symbol T_s .

surface tensility See surface tension.

surface thermometer [ENG] A thermometer, mounted in a bucket, used to measure the temperature of the sea surface.

surface-to-air missile [ORD] A guided missile designed to be fired at an airborne target from the ground or from the deck of a surface ship; examples include Bomarc, Hawk, Nike, Talos, Tartar, Terrier, and Wizard. Abbreviated SAM.

surface-to-surface missile [ORD] A guided missile designed to be fired at a surface target from a surface position on land or water; examples include Atlas, Corporal, Dart, Jupiter, Lacross, Mace, Matador, Navaho, Pershing, Polaris, Redstone, Regulus, Sergeant, Snark, Thor, and Titan. Abbreviated SSM.

surface treating [ENG] Any method of treating a material (metal, polymer, or wood) so as to alter the surface, rendering it receptive to inks, paints, lacquers, adhesives, and various other treatments, or resistant to weather or chemical attack.

surface vibrator [MECH ENG] A vibrating device used on the surface of a pavement or flat slab to consolidate the concrete.

surface visibility [METEOROL] The visibility determined from a point on the ground, as opposed to control-tower visibility.

surface wash See sheet erosion.

surface water [HYD] All bodies of water on the surface of the earth. [OCEANOGR] See mixed layer.

surface waterproofing [ENG] Waterproofing concrete by painting a waterproofing liquid on the surface.

surface wave [COMMUN] See ground wave. [ELECTROMAG] A wave that can travel along an interface between two different mediums without radiation; the interface must be essentially straight in the direction of propagation; the commonest interface used is that between air and the surface of a circular wire. [FL MECH] A wave that distorts the free

surface that separates two fluid phases, usually a liquid and a gas. [MECH] See Rayleigh wave. [OCEANOGR] A progressive gravity wave in which the disturbance is of greatest amplitude at the air-water interface.

surface-wave transmission line [ELECTROMAG] A single conductor transmission line energized in such a way that a surface wave is propagated along the line with satisfactorily low attenuation.

surface weather observation [METEOROL] An evaluation of the state of the atmosphere as observed from a point at the surface of the earth, as opposed to an upper-air observation, and applied mainly to observations which are taken for the primary purpose of preparing surface synoptic charts.

surface wind [METEOROL] The wind measured at a surface observing station; customarily, it is measured at some distance above the ground itself to minimize the distorting effects of local obstacles and terrain.

surface zero See ground zero.

surfacing [MET] Depositing filler metal on a metal surface by welding or spraying.

surfacing mat See overlay.

surfactant See surface-active agent.

surfactant flooding See micellar flooding.

surf beat [OCEANOGR] Oscillations of water level near shore, associated with groups of high breakers.

surficial creep See soil creep.

surficial deposit [GEOL] Unconsolidated alluvial, residual, or glacial deposits overlying bedrock or occurring on or near the surface of the earth. Also known as superficial deposit; surface deposit.

surficial geology [GEOL] The scientific study of surficial deposits, including soils.

surf ripple [GEOL] A ripple mark formed on a sandy beach by wave-generated currents.

surf zone [OCEANOGR] The area between the landward limit of wave uprush and the farthest seaward breaker.

surge [ASTROPHYS] An unusually violent solar prominence that usually accompanies a smaller flare, consisting of a brilliant jet of gas which shoots out into the solar corona with a speed on the order of 300 kilometers per second and reaches a height on the order of 100,000 kilometers. [ELEC] A momentary large increase in the current or voltage in an electric circuit. [ENG] 1. An upheaval of fluid in a processing system, frequently causing a carryover (puking) of liquid through the vapor lines. 2. The peak system pressure. 3. An unstable pressure buildup in a plastic extruder leading to variable throughput and waviness of the hollow plastic tube. [FL MECH] A wave at the free surface of a liquid generated by the motion of a vertical wall, having a change in the height of the surface across the wavefront and violent eddy motion at the wavefront. [OCEANOGR] 1. Wave motion of low height and short period, from about $\frac{1}{2}$ to 60 minutes. 2. See storm surge.

surge admittance [ELEC] Reciprocal of surge impedance.

surge arrester [ELEC] A protective device designed primarily for connection between a conductor of an electrical system and ground to limit the magnitude of transient overvoltages on equipment. Also known as arrester; lightning arrester.

surge bunker [MIN ENG] A large-capacity storage hopper, installed near the pit bottom or at the input end of a processing plant to provide uniform bulk deliveries.

surge column [PETRO ENG] A large-sized pipe of sufficient height to provide a static head able to absorb the surging liquid discharge of the process tank to which it is connected. Also known as boot.

surge current [ELEC] A short-duration, high-amperage electric current wave that may sweep through an electrical network, as a power transmission network, when some portion of it is strongly influenced by the electrical activity of a thunderstorm.

surge drum See surge tank.

surge electrode current See fault electrode current.

surge generator [ELEC] A device for producing high-voltage pulses, usually by charging capacitors in parallel and discharging them in series.

surge impedance See characteristic impedance.

d. Amendments to the Drawings

Figure 1 is amended as shown on the attached Replacement Sheet.

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